EMSL Analytical, Inc.

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Materials Science Division

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EMSL Case No.: 360900049
Sample(s) Received: 01/13/09
Date of Analysis: 01/13/09
Date Printed: 01/13/09
Reported By: J.Newton

- Laboratory Report -

Project: Cenosphere Analysis

Analyzed by:  13 January 2009

John Newton
Laboratory Manager

Date

QA/QC :  13 January 2009

Eugenia Mirica, Ph.D.
Senior Materials Scientist

Date

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Procurement of Samples and Analytical Overview:

The material arrived at EMSL Analytical's corporate laboratory in Westmont, NJ on 1/13/09. The package arrived in satisfactory condition with no evidence of damage to the contents. The data reported herein has been obtained using the following equipment and methodologies.

Methods & Equipment:	Scanning Electron Microscopy (SEM) Energy-dispersive X-Ray Spectrometry (EDX)

Sample Preparation:

The sample was sectioned by micro-sieve technique resulting in >180um, >90um, >45um and <45um sub-sections. Initial analysis was performed by light microscopy to observe the general particle size in reference to the Cenospheres. The >90um, >45um and <45um sub-samples were prepared for SEM/EDX analysis.

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Results and Discussion:

Cenospheres were observed in the sample. The Elemental Composition is predominantly alumino-silicate with lesser concentrations of potassium, calcium, titanium, iron, magnesium and sodium.

Element K-Factor (Ratio to Silicon)

Sample	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
C	0.072		0.125	0.010	0.065	0.179
Na	0.014	0.010	0.015	0.024	0.034	0.016
Mg	0.036	0.046	0.038	0.048	0.032	0.033
Al	0.668	0.493	0.778	0.555	0.838	0.453
Si	1.000	1.000	1.000	1.000	1.000	1.000
P*	0.021	0.017	0.028	0.005	0.028	0.039
S*	0.014	0.014	0.013	0.005	0.014	0.020
Cl				0.005		
K	0.083	0.095	0.116	0.083	0.094	0.049
Ca		0.009	0.008	0.010		0.039
Ti		0.006		0.019		0.023
V						
Cr						
Mn						
Fe	0.031	0.025	0.042	0.070	0.020	0.129
Co						
Ni						
Cu			0.004		0.005	
Zn						

* = Results may be elevated due to gold coating on the sample.

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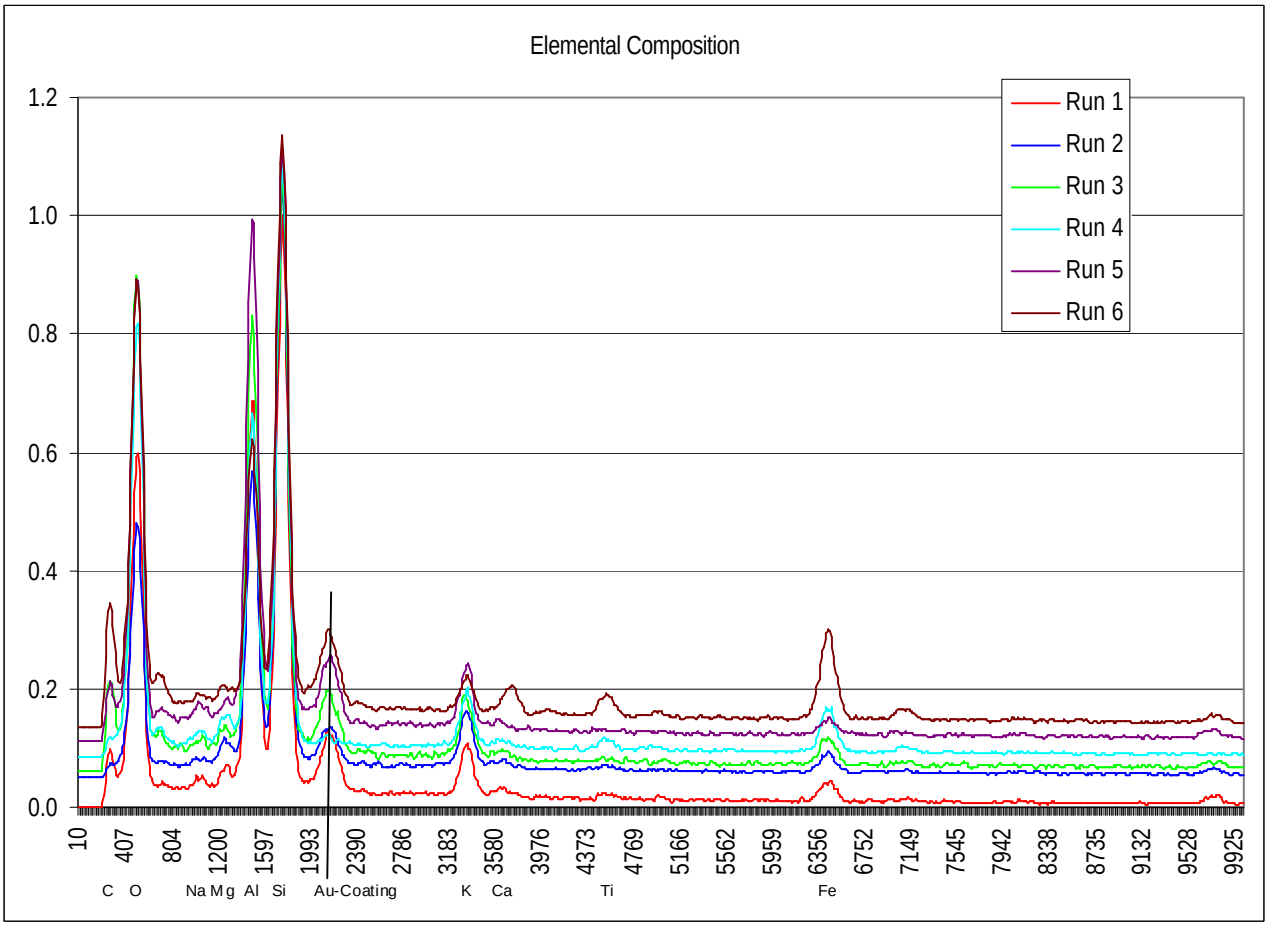

EDX Spectra from six random particles.

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Images of the Cenospheres at varying magnifications.